

WHAT IS CLAIMED IS:

1. An ultrasonic-welding apparatus comprising;

5 a cradle, onto which two work pieces of to be welded and for welding are mounted in piles, and which can rotate around the axis vertical to the welding surface of said work piece of to be welded;

a welding hone which carries out a welding using a supersonic in the condition of having sandwiched the two work pieces between said cradle; and

10 a transmission-type laser sensor which measures the fixed part of the work pieces of after welding by the irradiation of the laser light which runs parallel to said welding surface, and

said transmission-type laser sensor measures the fixed part of the work piece after welding, which is rotating on the cradle, in the condition that said welding hone is apart from the work piece of after welding.

15 2. An ultrasonic-welding apparatus according to claim 1, wherein said cradle is composed of a rotating table onto which said work piece is mounted, and a fixed table, which is fixed to a fixed system and supports said rotating table rotatably.

20 3. An ultrasonic-welding apparatus according to claim 2, wherein said rotating table is composed of

a mounting part, which supports said work piece, and which has the bottomed cylindrical shape, and which is rotatably mounted on said fixed table,

25 a positioning cylinder, which is inserted into an inner cylinder of said mounting part, and used for the positioning control of the work piece,

a rotary joint, which receives a rotation torque of the rotation axis of the fixed table, and

a bolt, which connects these components in integrally.

5 4. An ultrasonic-welding apparatus according to claim 2, wherein said fixed table is composed of

a base, which is fixed to a fixed system,

a rotation axis, which is rotatably supported by the radial ball bearing of upside-and-downside within the hole which is formed toward the perpendicular direction at the center of said base.

10 5. An ultrasonic-welding apparatus according to claim 1, wherein said transmission-type laser sensor is arranged at the side direction of said work piece, and irradiates the light, light flux of which has a face parallel to said 15 rotation axis of said cradle, and which runs parallel to the work piece, at the height where the light is irradiated to the work piece.

20 6. An ultrasonic-welding apparatus according to claim 3, wherein said positioning cylinder is consisted of a magnetic material.

7. A rotation sensor for an ultrasonic-welding apparatus, which detects the rotation of a rotor comprising;

light-emitting means, which emits a light to a detecting object which rotates with the rotation of said rotor,

25 light-receiving means, which receives the light emitted from said light-emitting means.

8. A rotation sensor for an ultrasonic-welding apparatus according to claim 7,
wherein said light-emitting means and light-receiving means are disposed at
the position where face to the detecting part formed on said rotor, and the
5 light vertical to said detecting part is emitted from the light-emitting means.

9. A rotation sensor for an ultrasonic-welding apparatus according to claim 7,
wherein said detecting part is a depression formed on said rotor, and said
light-receiving means receives the light, which is emitted from said light-
10 emitting means and reflected by said depression.

10. A rotation sensor for an ultrasonic-welding apparatus according to claim
7, wherein said detecting part is a hole formed on said rotor, and said light-
receiving means receives the light, which is passed through said hole.

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11. A rotation sensor for an ultrasonic-welding apparatus according to claim
7, wherein said rotor is a reel for winding a magnetic tape, and said detecting
part is a depression, which is formed on the inside of the flange part of said
reel, and which is used for escaping an air.

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12. A detecting method of the rotation of a rotor using a rotation sensor for an
ultrasonic-welding apparatus, which is composed of light-emitting means,
which emits a light to a detecting object which rotates with the rotation of
said rotor, and light-receiving means, which receives the light emitted from
25 said light-emitting means, wherein rotation of the rotor is detected based on
the time period expended while the irradiated light from the light-emitting

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means is received at said light-receiving means.

13. An adjusting method of the optical sensor for an ultrasonic-welding apparatus, which adjusts the location of said optical sensor having light-emitting means, which emits a light to a detecting object, and light-emitting means, which receives the light emitted from said light-emitting mean, wherein an adjusting member which interrupts the part of the light emitted from the light-emitting means is arranged, and forms the light-receiving image affected by said adjusting member using the light which is received at said light-receiving means, the method comprising the step of:

10 a first adjusting process, in which the light-emitting means and the light-receiving means are moved around the axis vertical to the light emitting direction, and adjusts the location of the light-emitting means and the light-receiving means based on the light-receiving image which is changed by the movement of the light-emitting means and the light-receiving means;

15 a second adjusting process, in which the light-emitting means and the light-receiving means are moved around the axis parallel to the light emitting direction, and adjusts the location of the light-emitting means and the light receiving means based on the light-receiving image which is changed by the movement of the light-emitting means and the light-receiving means.

14. An optical sensor for an ultrasonic-welding apparatus comprising;

20 a light-emitting part which emits a light to a detecting object,

25 a light-receiving part which receives the light emitted from said light-

emitting part and affected by said detecting object,

a connecting part, onto which the light-emitting part and said light-receiving part are mounted, and

a adjusting part, which rotates, said connecting part around two axes.

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15. An optical sensor for an ultrasonic-welding apparatus according to claim 14, wherein said connecting part has a plate shape having a predetermined flatness, and said light-emitting part and said light-receiving part are mounted at the top-face side both ends thereof in the condition that the 10 light-emitting part and the light-receiving part face each other.

16. An optical sensor for an ultrasonic-welding apparatus according to claim 14, wherein said adjusting part is composed of;

a first basis stage,

15 a first moving stage, which slides circularly on the top face of said first basis stage,

a second basis stage, which is fixed to the top face of said first moving stage, and

20 a second moving stage, onto which said connecting part is fixed, and which slides circularly on the top face of said second basis stage.